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ABSTRACT

The building of a repertoire of written words recognized on sight is an important prerequisite for complex reading skills. Coordination of certain sense modalities, when present in the learning of a new written word, increases the probability that this word will be retained over a period of time. This coordination involves specific intersensory transfers (intersensory transfer refers to the ability to translate information from one sensory mode to another). This paper analyzes current word recognition instructional methods in terms of their intersensory transfer components. A perceptual model of word recognition, based on perceptual memory research, is then presented. The model can be utilized as a basis to derive a new instructional technique for remediation of word recognition difficulties. (TO)

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# AN INTERSENSORY TRANSFER APPROACH TO TEACHING SIGHT WORDS

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Word recognition ability is an important consideration in any remedial reading program. The building of a repertoire of written words recognized on sight is an important prerequisite for complex reading skills. Without such a sight vocabulary, the reader is forced to decode every written word that he encounters. This "word-by word" reading is time-consuming, sometimes inaccurate, and prohibitive in terms of efficient comprehension of what has been read.

A remedial procedure which effectively and consistently increases a student's sight vocabulary would be an important contribution to the instruction of reading. It is the author's view, that coordination of certain sense modalities, when it is present in the learning of a new written word, increases the probability that this word will be retained over a period of time. This coordination is seen as involving specific intersensory transfers (intersensory transfer refers to the ability to translate information from one sensory mode to another).

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This paper shall analyze current word recognition instructional methods in terms of their intersensory transfer components. A perceptual model of word recognition, based on perceptual memory research, will then be presented. The model shall be utilized as a basis to derive a new instructional technique for remediation of word recognition difficulties.

## Current Instructional Methods

According to Bond and Tinker (3), four basic approaches are used to teach beginning or remedial word recognition skills. These include spelling methods, phonic or phonetic alphabet methods, whole word methods, and context methods. The purpose of this section is to define each method and to analyze the sense modes utilized in each approach.

Basic spelling methods require the student to correctly spell a word presented auditorally to him. When a word is incorrectly written down, the student practices writing the word several times and is then tested again.

The "spelling B" is another type of spelling approach. It requires the student to verbally give the correct letters for a word presented auditorally. Once again practice or overlearning is the procedure followed when words are incorrectly spelled.

Both spelling methods require intersensory transfer from the auditory mode to other modes. The basic method involves auditory to kinesthetic (writing) to visual transfers. The spelling B includes auditory to kinesthetic (verbalization) to auditory transfers. In both cases a decoding of the auditory presentation is required before transfer takes place.

Phonics and phonetic alphabet instruction emphasize visual-auditory transfer. They attempt to provide students with basic word decoding skills based on symbol-sound associations. Phonics instruction associates letters in the alphabet with their respective sounds while phonetic alphabet instruction associates phonetic alphabet letters with specific sounds. Students are generally required to imitate the sounds given by the instructor when a letter is presented to them. Overlearning by drill is then required. Both methods involve visual to kinesthetic (verbalization) to auditory transfers. Through this type of procedure, word attack or word analysis skills are expected to develop (i.e. decoding skills). A word is initially viewed as the sum of its parts. The student is required to repeatedly transfer from the visual to the kinesthetic (verbalization) to the auditory modes as a consequence of this instruction.

The whole word approach to teaching word recognition involves word configuration memorization. Written words are presented to the student and he is given the auditory representation of that word. The student usually repeats the word verbally. This procedure is followed for a list of words with the student repeating the words until he can read the words on sight. The perceptual process is the same as the phonics-phonetic alphabet approaches (visual to kinesthetic to auditory transfer) although synthesis of the whole word configuration is emphasized rather than word part analysis (i.e. rote learning instead of strategy learning).

All of the previous instructional viewpoints have concerned themselves with words in isolation. The context approach takes the stand that word recognition must occur within a meaningful framework. In other words, word meaning and relationships between words is stressed in this approach. Structural units such as sentences,

paragraphs, stories, etc. are the forms of instructional presentation. Proponents of this method claim that the most important aspect in the teaching of word recognition is the concept that written words are representations of spoken language.

There are two basic presentations in the context approach. In general, the student is either presented with a selection and asked to underline words that he sees but does not know so that they can be presented to him in the context of the selection or he is asked to verbally create a context for specific words and is then presented with the graphic and corresponding verbal representation of that context. These contexts act as links between spoken and written language. This juxtaposition of speaking and writing is the basis for the whole approach.

More modes are utilized in the context approach than in the other methods. The first method involves visual to kinesthetic (underlining) to auditory to visual transfers. The second method uses kinesthetic (verbalization) to auditory to visual to auditory transfers.

On the surface, all the methods presented appear to be valid in terms of their intent. As instructional strategies, either separately or in combination with each other (the general contemporary view), they should logically increase word recognition skills.

## A Model of Word Recognition

The major focus of this paper concerns whether or not a particular pattern of intersensory transfers is necessary for proficient word recognition skills to be evident. In a study with high school remedial readers, Silverston (9) determined that a technique which utilized certain systematic intersensory transfers was superior to carefully

controlled versions of context, spelling, and phonics techniques in the teaching of fifty basic sight vocabulary words. The rationale for this intersensory transfer technique is discussed below.

Word recognition for oral reading involves the observable elements of presentation of graphic symbols which is followed by an appropriate verbal response. At this observable level what is required is a visual to kinesthetic (verbal response) transfer. This is a bit too simplistic. The manner in which visual input of symbols becomes associated with sounds and verbal responses is not clear.

Various cognitive learning theorists, including Atkinson and Shiffrin (1), Neisser (6), and Norman (7), view the memory process as being composed of three elements. These elements are visual information storage (VIS), short-term memory (STM), and long term memory (LTM). The life of VIS is about one second according to research performed by Averback and Sperling (2) and Sperling (11). Waugh and Norman (13) determined that information stored in STM survives about fifteen seconds if it is not recoded or practiced. LTM information storage lasts for an extended period of time.

Conrad (5), Sperling (10), and Steinheiser (12) provide some evidence to suggest that, for verbal individuals, VIS is recoded auditorally for STM storage. The presence of vocal or subvocal repetition then determines the storage of the information in LTM by preventing decay and interferrence according to research by Brown (4) and Waugh and Norman (13). These seem to be reasonable constructs due to the fact that, for verbal individuals, language (auditory information) probably acts as the coordinator of all sensory information. Language

is associated with visual imagery, tactile sensations, and kinesthetic operations and, thus, is the most efficient encoding device. A word can be retrieved from LTM, for instance, with a great deal of sensory information associated with it.

Piaget (8) makes the point that language is the product of sensory experiences. Consequently, language acquisition can be viewed as the auditory encoding of all sensory experience. A child receives auditory cues from his parents with reference to concrete experiences and learns to associate these sounds with his experiences. In addition, he rehearses the kinesthetic production of these sounds so that the information is stored in LTM (see Figure 1).

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Insert Figure 1 here

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Reading words involves the recoding or transfer of visual stimuli (symbols) into the auditory form of language. In order for this to occur the individual must essentially add a new dimension to his language acquisition format--a type of visual to auditory transfer has to take place. The symbols have to become meshed or associated with language acquisition (see Figure 2).

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Insert Figure 2 here

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Another skill often overlooked on the subject of word recognition is the ability to correctly graphically spell words. From the viewpoint of this model, spelling and writing words is the linking of kinesthetic responses to the word reading process. These kinesthetic responses

naturally result in visual input which feed into the reading and language perceptual systems. Learning to correctly write words is a copying or visual to kinesthetic transfer procedure which yields a visual product which can then be read or verbalized (see Figure 3).

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Insert Figure 3 here

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An instructional procedure which establishes the perceptual relationships posited in this model should be extremely effective in increasing word recognition skills. Such a procedure is discussed below.

## An Instructional Technique

The student should be guided through the language acquisition process discussed above while systematically adding the reading and writing components in terms of the words chosen to be taught. Basically, the student is shown a word and is given its auditory representation (visual to auditory transfer). He verbalizes the word (kinesthetic to auditory transfer) and then listens to a recording of his verbalization while looking at the word (auditory to visual transfer). Finally, he writes the word down and reads his writing (kinesthetic to visual to kinesthetic to auditory transfer). This sequence can best be accomplished through use of an audio-flashcard system. The flashcards should have a two channel capacity so that a prepared recording can be made and the student can make his recording on the same card. The words to be taught should be printed on each card. The following procedure should then be followed: 1. Student looks at word flashcard and plays prepared recording for that word. 2. Student records on tape the correct response for that word while looking at word. 3. Student

plays back his recording while looking at word. 4. Student writes word. 5. Student reads word he has written to instructor.

## Conclusions

A new instructional technique for the remediation of word recognition difficulties has been introduced. This technique was derived from a model of word recognition. The model was based upon a perceptual (intersensory transfer) view of the word recognition process.

It is hoped that the technique discussed in this paper will prove useful to practitioners in the field of Reading. It is also hoped that further research in Reading will be initiated from this intersensory transfer vantage point.

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FIGURE 1
Perception and Acquisition of Language

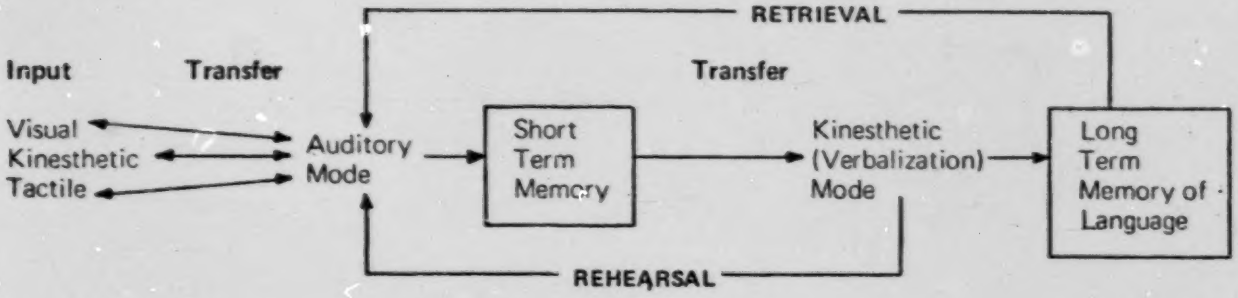


FIGURE 2
Perception and Visual Word Recognition Acquisition

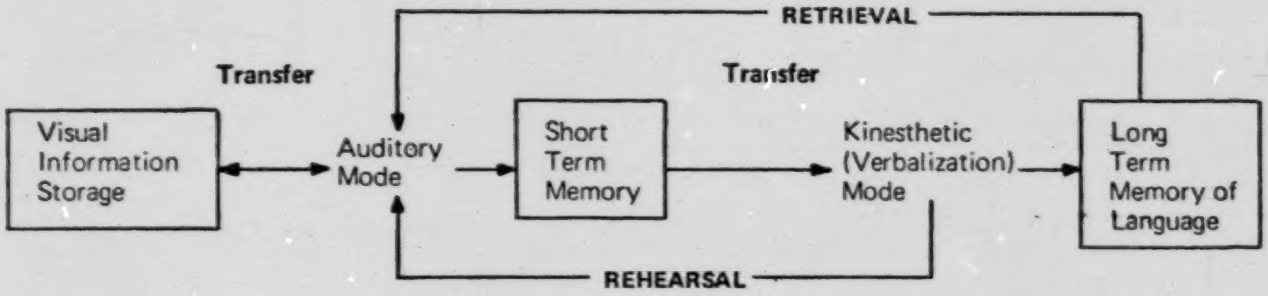

FIGURE 3
Perception and Writing Acquisition